

Docket No. 0435.064

Applicant(s): Oldfield, Christopher

Serial No.

Group Art Unit:

Filed:

Examiner:

Title: METHOD, APPARATUS AND USE OF CHELATING AGENTS FOR THE
PURIFICATION OF CALCIUM SULPHATE

Commissioner for Patents
Washington, D.C. 20231

Preliminary Amendment Under 37 C.F.R. 1.115

Dear Sir:

Prior to examination, please amend the application as follows:

In the specification:

Page 1, line 2, following the title please amend by inserting a new first paragraph:

-- Cross Reference to Related Applications

This application is a continuation of PCT application PCT/GB00/01487 filed April 28, 2000, and published in English as WO 00/66495 on November 9, 2000. PCT/GB00/01487 claimed the priority of British application 9909749.5, filed April 29, 1999. The entire disclosures of both are incorporated herein by reference.--

Following page 22, insert a new page 23 as follows:

Abstract of the Disclosure

A chemical process for the purification of CaSO_4 utilises the ability of an aqueous solution of a chelating agent to selectively dissolve CaSO_4 in that the initial extraction can be carried out at certain pH and CaSO_4 can be recovered by titration to a different pH (usually a lower pH) following a mechanical treatment, such as centrifugation or filtration, to separate the aqueous chelate solution from insoluble material. Also claimed are an apparatus and the use of chelating agents therefor.

In the claims:

Cancel claims 9 and 10.

Amend claims 5 and 7 according to 37 CFR §1.121(c)(1) by replacing the existing claim with an amended claim as follows:

5. (once amended) A method according to claim 1 wherein the calcium chelating agents are selected from 4- (carboxymethyl) -2-(trimethylamino) pentane-1, 5-dicarboxylic acid, 2-(carboxymethyl) -1-(trimethylamino) butane-1, 4, dicarboxylic acid, 2-(carboxymethyl) -3-(trimethylamino) -butane-1, 4-dicarboxylic acid, ethane 1, 2-diamine N,N,N'N' tetra-acetic acid (EDTA), and sodium salts of such agents and the like polydentate ligands comprising organic chelating compounds modified by addition of or substitution with a solubilizing group, e.g. a quaternary ammonium group, which is soluble in acid pH ranges, especially remaining soluble below pH4.

7. (once amended) A process according to claim 2 wherein the chelating agents include at least one of the following :4-(carboxymethyl) -2-(trimethylamino) - pentane-1, 5-dicarboxylic acid, 2-(carboxymethyl) -2-(trimethylamino) butane-1, 4, dicarboxylic acid, 2-(carboxymethyl) -3-(trimethylamino) -butane-1, 4-dicarboxylic acid, and the like polydentate ligands comprising organic chelating compounds modified by addition of or substitution with a solubilising group, e.g. a quaternary ammonium group, which is soluble in acid pH ranges, especially remaining soluble below pH4.

Add new claims 11, 12 and 13 as follows:

11. A method according to claim 4 wherein the calcium chelating agents are selected from 4-

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(carboxymethyl) -2-(trimethylamino) pentane-1, 5-dicarboxylic acid, 2-(carboxymethyl) -1-(trimethylamino) butane-1, 4, dicarboxylic acid, 2-(carboxymethyl) -3-(trimethylamino) -butane-1, 4-dicarboxylic acid, ethane 1, 2-diamine N,N,N'N' tetra-acetic acid (EDTA), and sodium salts of such agents and the like polydentate ligands comprising organic chelating compounds modified by addition of or substitution with a solubilizing group, e.g. a quaternary ammonium group, which is soluble in acid pH ranges, especially remaining soluble below pH4.

12. A method according to claim 11 wherein the chelating groups are selected from sulphonic and carboxylic groups.

13. A process according to claim 3 wherein the chelating agents include at least one of the following :4-(carboxymethyl) -2-(trimethylamino) - pentane-1, 5-dicarboxylic acid, 2-(carboxymethyl) -2-(trimethylamino) butane-1, 4, dicarboxylic acid, 2-(carboxymethyl) -3-(trimethylamino) -butane-1, 4-dicarboxylic acid, and the like polydentate ligands comprising organic chelating compounds modified by addition of or substitution with a solubilising group, e.g. a quaternary ammonium group, which is soluble in acid pH ranges, especially remaining soluble below pH4.

REMARKS

Cross reference to related applications is made in accordance with 37 CFR 1.78(a)(2) by adding a new section to the specification.

An abstract, on a separate page as required by 37 CFR 1.72(b), has been added.

Claims 5 and 7 are amended to eliminate multiple dependencies and claims 11-13 are added to encompass the same subject matter, as shown in the marked up versions below:

5. (once amended) A method according to claim 1 **[or claim 4]** wherein the calcium chelating agents are selected from 4- (carboxymethyl) -2-(trimethylamino) pentane-1, 5-dicarboxylic acid, 2-(carboxymethyl) -1-(trimethylamino) butane-1, 4, dicarboxylic acid, 2-(carboxymethyl) -3-(trimethylamino) -butane-1, 4-dicarboxylic acid, ethane 1, 2-diamine N,N,N'N' tetra-acetic acid (EDTA), and sodium salts of such agents and the like polydentate ligands comprising organic chelating compounds modified by addition of or substitution with a solubilizing group, e.g. a quaternary ammonium group, which is soluble in acid pH ranges, especially remaining soluble below pH4.

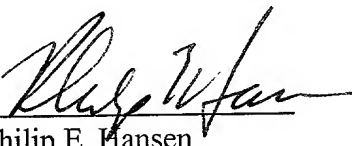
7. (once amended) A process according to claim 2 **[or claim 3]** wherein the chelating agents include at least one of the following :4-(carboxymethyl) -2-(trimethylamino) - pentane-1, 5-dicarboxylic acid, 2-(carboxymethyl) -2-(trimethylamino) butane-1, 4, dicarboxylic acid, 2-(carboxymethyl) -3-(trimethylamino) -butane-1, 4-dicarboxylic acid, and the like polydentate ligands comprising organic chelating compounds modified by addition of or substitution with a solubilising group, e.g. a quaternary ammonium group, which is soluble in acid pH ranges, especially remaining soluble below pH4.

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Claims 1-8 and 11-13 are pending in the case.

Respectfully submitted,

October 29, 2001
Date


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